45,646

MEMORIAL

RELATIVE TO THE

INVENTION

OF A

NEW METHOD OF *BLEACHING*,

SHOWING THE ABSURDITY OF ANY
PRETENSIONS TO AN EXCLUSIVE
PRIVILEGE FOR USING IT

IN THE

PAPER MANUFACTURE.

[By Robert Kerr, Surgeon]

[of Letters Patent No. 1872 of 1792
C. + G. Taylor]

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MEMORIAL, &c.

12.6.12.

SOME time in the year 1774, Mr Scheele, a celebrated German chemiſt eſtabliſhed in Sweden, communicated to the Swediſh Academy of Sciences an Eſſay on Manganeſe, containing a numerous ſeries of experiments, intended to inveſtigate the nature and properties of that ſubſtance. Among theſe experiments were ſeveral which pointed out a new ſtate of the muriatic acid, or the acid diſtilled from ſea ſalt, otherwiſe known under the name of the Acid or Spirit of Sea Salt.

This new, or hitherto unknown, ſtate of the muriatic acid, was produced by Mr Scheele, in conſequence of putting the ſaid acid into a retort or diſtilling veſſel, along with the above

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mentioned ſubſtance called Manganeſe; and diſtilling over the acid into a proper receiver; it was found to have changed its nature and properties in a very remarkable manner, while, at the ſame time, the mangane∫e remaining in the retort had ſuffered a very material alteration.

To the new ſtate of the acid thus produced, in conſequence of certain theoretic ideas which Mr Scheele entertained reſpecting the mutual action of the original muriatic acid and the mangane∫e on each other during the proceſs of diſtillation, Mr Scheele gave the name of Dephlogiſticated Muriatic Acid. Since the time of this original diſcovery, in conſequence of certain changes which have occurred in the theory or philoſophy of chemiſtry, this new ſtate of the acid of ſea ſalt has been called the Oxygenated Muriatic Acid.

Among many other properties of this new diſcovered acid, or new ſtate of an acid long known,

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known, and communicated by Mr Scheele in the above mentioned Eſſay, this was the moſt remarkable, that it deſtroyed the colour of every vegetable ſubſtance which was expoſed to its action; or, in other words, it *bleached* them; or, in the language of the dyers, it *diſcharged* their colours; that is to ſay, whatever happened to be the colour of any vegetable body that was ſubmitted to the action of the oxygenated or dephlogiſticated muriatic acid, it always became *white*, or loſt its colouring matter.

It may be difficult to aſcertain the preciſe time at which this great diſcovery by Mr Scheele was publiſhed in Sweden; but it is certain that it was communicated to the public in Britain in the year 1786; for, in that year, Dr Bedoes, now Profeſſor of Chemiſtry in the Univerſity of Oxford, publiſhed an Engliſh tranſlation of the Chemical Eſſays of Mr Scheele; in which publication the Eſſay on Manganeſe, containing the above diſcovery, is included. Dr Bedoes dates his tranſlation on the 12th of February 1786, at Edinburgh. Thus, in the year 1786 at leaſt, the power of the oxygenated or dephlogiſticated muriatic acid to bleach or whiten vegetable ſubſtances, or to diſcharge or decompoſe their colours, was made known to the chemiſts of Britain.

But this diſcovery was known earlier even by many in Britain, through the medium of Crell's Chemical Journal, a celebrated periodical publication at Berlin, and of the Journal de Phyſique, a no leſs famous periodical work which is publiſhed at Paris. The above periodical publications give regular information of all chemical diſcoveries as early as poſſible; and both of them are regularly procured from the Continent by many in Britain, by individuals for the ſatisfaction of their own curioſity, as well as by ſocieties and public libraries. Neither of theſe works being at preſent before the writer of this Memorial, the preciſe period at which the diſcovery, of the bleaching quality of the oxygenated or dephlogiſticated muriatic acid, was communicated through them to the public, cannot be readily aſcertained; but it muſt have been previous to the tranſlation of Scheele's Eſſays by Dr Bedoes, as he mentions them both in his preface as having been of conſiderable aſſiſtance to him in clearing up ſome difficult paſſages in the German tranſlation from which his Engliſh verſion was made. Theſe chemical eſſays of Mr Scheele had likewiſe been tranſlated into French by Mr de Morveau, previous to the publication of the tranſlation into Engliſh by Dr Bedoes.

Thus in the year 1786, and even earlier, the diſcovery of the property of oxygenated muriatic acid, to bleach or whiten all kinds of vegetable coloured ſubſtances, had been communicated to the public in Swediſh, German, French, and Engliſh verſions of Mr Scheele's Eſſays, and in a great number of foreign Journals, or periodical literary and phyſical intelligencers; for theſe, which are publiſhed at ſtated intervals in all the great cities on the Continent of Europe, regularly copy or extract from each other.

Dr. Black, our celebrated Profeſſor of Chemiſtry in the Univerſity of Edinburgh, began to ſhow experiments with the oxygenated muriatic acid, in his academical courſe of the winter 1789-90; he ſubmitted various vegetable ſubſtances, both in their natural colours, and coloured or dyed artificially, to the action of the acid; ſuch as unbleached yarn, pieces of paper ſtained with different vegetable colours, brown paper, the leaves of books which had become yellow or brown with age, &c.; and all of theſe were more or leſs bleached or whitened, in proportion to the ſtrength of the acid applied. During that courſe of lectures, and the two ſubſequent ſeſſions of the Edinburgh Univerſity, he has ſhewn theſe effects of the oxygenated muriatic acid to many hundred ſtudents, collected from almoſt every nation in Europe, and from various tranſatlantic countries; ſo that, even ſuppoſing the before mentioned publications never to have been made, or that they never had been read, the knowledge of the bleaching property of the oxygenated muriatic acid muſt long ere now have been univerſally ſpread in every country on the earth where chemiſtry is cultivated.

Mr Berthollet, a celebrated chemiſt in France, and one of the members of the Academy of Sciences at Paris, appears to have been the firſt who thought of rendering the above recited diſcovery ſubſervient to the purpoſes of manufacture, or, at leaſt, who had enlargement of mind ſufficient to communicate his knowledge and experiments on that ſubject to the world. He, a long while ago, turned his attention very particularly to inveſtigate the nature and properties of the oxygenated muriatic acid; and inſtituted a great number of experiments for that purpoſe, both in a philoſophical and economical point of view. The philoſophical diſcuſſions on this ſubject were publiſhed by him in the collections of the Academy of Sciences for 1785, and ſeveral following years; and in the Journal de Phyſique for June 1785, and Auguſt 1786. Theſe contain a vaſt fund of information, even on the application of the oxygenated muriatic acid to the uſes of the manufacturer, for bleaching all kinds of coloured vegetable ſubſtances, but ſo much blended with theoretic or philoſophical inveſtigations as to be much beyond the reach of the generality of manufacturers. To render his labours more generally uſeful, he publiſhed, in the Annales de Chimie for 1789, the reſult of all his experiments, with comprehenſive directions for preparing and uſing the oxygenated muriatic acid, in every poſſible caſe where colours were to be diſcharged from any kind of vegetable ſubſtance whatever, and containing information on a variety of other circumſtances neceſſary or uſeful for accelerating the proceſs of bleaching, or for perfecting the whiteneſs of the bleached ſubſtances.

The title of this Eſſay, which is calculated intirely for the uſe of manufacturers by being diveſted of theoretic diſcuſſions, is

“ Deſcription du blanchiment des toiles et
“ des fils par l’acid muriatique oxygéné, et
“ de quelques autres propriétés de cette liqueur
“ relatives aux arts ;” or

“ Method of bleaching linen or cotton
“ cloths, threads, and yarns, by means of oxy-
“ genated muriatic acid, and of ſome other
“ properties of that liquor which may be uſe-
“ ful in manufactures.”

An Engliſh tranſlation of the above mentioned Eſſay was publiſhed at Edinburgh, in May 1790, by the writer of this memorial ; and the ſale was ſo rapid, as to occaſion a ſecond edition in February 1791. To both of theſe editions the Tranſlator added, from the Annales de Chimie of the ſame year 1789, an account of ſome experiments by Mr Chaptal, another French chemiſt; which account is extracted from a more extended Eſſay, intended for publication in the Memoirs of the Academy of Sciences for 1787: In theſe experiments, among many other applications of the oxygenated muriatic acid to purpoſes uſeful in the economical arts, Mr Chaptal gives information of having bleached or whitened coarſe rags uſed by the paper-makers, ſo as greatly to improve the quality of the paper into which they were afterwards manufactured.

This tranſlation of the New Method of Bleaching all kinds of vegetable ſubſtances, by means of oxygenated muriatic acid, beſides the ordinary diſſemination by ſale both in Scotland and England, was diſtributed gratis among the bleachers of Scotland by the Board of Truſtees, and in Ireland by the Linen Board.

Immediately

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Immediately after the publication of this tranſlation of the New Method of Bleaching, the Tranſlator had ſeveral converſations with ſome of the Paper-makers near Edinburgh; and offered to ſuperintend the experiment at any of the mills, provided they would bear all the expence of the neceſſary implements and ingredients. They ſeemed very well diſpoſed to countenance the propoſed improvement; but, as the Tranſlator was never formally empowered to give orders for conſtructing the apparatus, he did not think himſelf ſufficiently warranted to incur any expence for others; and there, ſo far as he knew, the matter reſted. One gentleman in the paper trade, however, Mr Simpſon, was more ſanguine in his views; for, immediately after the appearance of the Tranſlation of the New Method of Bleaching, Mr Simpſon ordered a quantity of the oxygenated muriatic acid to be prepared for his uſe by a chemiſt in Edinburgh, in order directly to inſtitute experiments on the ſubject: Mr Simpſon, however, was diſappointed by the chemiſt to whom he applied, who delayed from time to time on various pretences, furniſhing him with the acid neceſſary for his experiments: Mr Simpſon, by this means, was very long prevented from carrying his intended experiments into execution; and, at laſt, having procured ſome of the bleaching liquor, did actually bleach or whiten ſome paper ſtuff by means of the oxygenated muriatic acid, but not before Meſſrs Taylors had obtained their letters patent for excluding all others from uſing an invention publiſhed to the world many years before.

Some years before the publication of the Tranſlation of the Eſſay on the New Method of Bleaching, Mr M'Whirter, an ingenious and experienced bleacher, at Inglis-Green near Edinburgh, having received information of the method of bleaching with oxygenated muriatic acid, made application to Mr Willis, a chemiſt of reputation at London, for inſtructions in the preparation and uſe of the oxygenated muriatic acid, and paid a handſome ſum for the ſame: Since that time, he has been in the conſtant practice of bleaching a great variety of ſtuffs, threads, and yarns, both of linen and cotton, by this new method.

So much of the hiſtory of the diſcovery and employment of the oxygenated muriatic acid, ſeemed neceſſary to ſhew clearly, that its property of bleaching all kinds of vegetable ſubſtances, or of diſcharging all ſorts of colours from theſe, and rendering them white, has been perfectly familiar to all the chemiſts of Europe for many years; and even that its economical application to the purpoſes of various manufactures has been completely in the poſſeſſion of the public, and uſed as a commonly known proceſs by many manufacturers; and thereby to evince the abſurdity of any attempt to appropriate this as a new invention or diſcovery.

Yet, notwithſtanding of the notorious publicity of the properties of oxygenated muriatic acid for bleaching all kinds of vegetable ſubſtances, Meſſrs Clement and George Taylors of Maidſtone in Kent, have had the effrontery to take out letters patent under the Great Seals, both of England and Scotland, for the excluſive uſe of the oxygenated muriatic acid in bleaching or whitening linens and cottons, in the various ſtages of the paper manufacture; thus falſely arrogating to themſelves the merit of being inventors of a chemical ſubſtance or compoſition, which has been long known to chemiſts as the diſcovery of Mr Scheele of Sweden, and of an economical proceſs for the application of that diſcovery to the ſervice of manufactures, which has been long publiſhed by Mr Berthollet; and of which even the particular application to the paper manufacture has been long communicated to the public by Mr Chaptal.

To give a preciſe idea of the ſhallowneſs of the pretences of the Meſſrs Taylors for being conſidered, even in the ſmalleſt degree, as having any right or title to the invention in queſtion, even in its moſt minute circumſtances, a ſhort compariſon is here ſubjoined of the original proceſs, as publiſhed in 1789 by Mr Berthollet, and tranſlated into Engliſh, and publiſhed at Edinburgh, with that of the Meſſrs Taylors, as contained in the ſpecification of their patent, recorded on the 27th of July 1792, in the Chancery of Scotland: They are both abridged, it is true; but if any doubt remains, the Tranſlation of the New Method of Bleaching may be compared with a copy of the ſpecification. It may be neceſſary to premiſe, that, in both, there are two diſtinct ſteps or operations directed; one is the preparation of the oxygenated muriatic acid, or bleaching liquor, and its application to the ſubſtance to be bleached; the ſecond is the preparation and employment of an alkaline liquor, or ley, which is found to be conducive to the expedition and perfection of the whitening proceſs produced by the particular bleaching liquor.

BERTHOLLET'S PREPARATION OF THE BLEACHING LIQUOR.

" Take ſix ounces of mangane ſe, and ſixteen
" ounces of ſea ſalt, both reduced to a fine
" powder; mix theſe accurately, and intro-
" duce them into a retort or diſtilling veſſel:
" Then take twelve ounces of oil of vitriol, and
" eight ounces of water, mixed together, and al-
" lowed to cool; add theſe to the other ingredi-
" ents in the retort; and connect the retort with
" a caſk or receiver, capable of holding twenty
" ſeven gallons and a half of water, but only
" containing twenty five gallons, which is to

" be impregnated with the gas or vapour of " the oxygenated muriatic acid, and proceed " to diſtillation, firſt without and afterwards " with a fire gradually raiſed till the whole acid " comes over.

MESSRS TAYLORS PREPARATION OF THE SAME.

" Take ſixteen pounds of common ſalt, eight " pounds of manganeſe, and twelve pounds of " oil of vitriol; dry the ſalt, and pound and " ſift it fine, and pound or grind the manganeſe in a ſimilar manner; then mix them " thoroughly, and put them into a retort or " retorts, or other proper diſtilling veſſel; add " thereto the oil of vitriol; and immediately " thereafter, put to theſe ingredients ſix pounds " of cold water: Adapt the neck of the retort or retorts to a wooden receiver or receivers, capable of holding two hundred and

“ eighty gallons of water, but containing only
“ two hundred gallons; then light a fire under
“ the retort and proceed to diſtillation.”

The various ſteps in the above two proceſſes are ſo preciſely ſimilar to each other, as almoſt to induce a belief, that the one muſt neceſſarily have been copied from the other, or at leaſt, that both muſt have been tranſcribed from one whoſe date was prior to either; but this very ſingular coincidence will appear ſtill more ſtricking and ſatisfactory, by reducing the two receipts to a comparative table of equal parts, thus:

	Bertbollet.	*Taylors.*
Manganeſe	6	8
Sea Salt	16	16
Vitriol	12	12
Water	8	6

In the two receipts, the two active ingredients which are always uniform in their qualities, viz. ſalt and oil of vitriol, are both preſcribed exactly in the ſame proportions: The proportion of the mangancſe, as directed in the two receipts, indeed differs; but that ſubſtance is univerſally known to vary exceedingly in its ſtrength or purity; and, therefore, its proper proportion muſt be regulated, by actual experiment, for each new cargo that is procured by the operator. Mr Berthollet is well aware of this circumſtance; and accordingly, after informing us *, that, by repeated trials, he had found the proportions as above directed the moſt convenient and proper when the mangaueſe is very pure; he adds †, that, when this is not the caſe, its quantity muſt be increaſed in proportion to its impurity; and he gives very excellent inſtructions for aſſiſting the judgment of the operator on this ſubject, which are not at

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* New Method, p. 41.

† Ditto, p. 42.

at all neceſſary to be here taken notice of; but, by the by, it would have been highly becoming in the Meſſrs Taylors, when narrating the neceſſary ſteps for properly conducting the proceſs of their *new invention*, to have inſtructed the public in all the minutiae requiſite for uſing their *invention* after the expiry of their privilege; as by law, it is made a condition with *inventors*, when obtaining a patent, to lodge a perfect ſpecification of their *invention*, expreſsly for that purpoſe.

The quantity of water added, in the one caſe, to the oil of vitriol before it is put into the retort, and, in the other caſe, to the whole ingredients after they have been put in, is ſomewhat different in the two receipts; but then, as the only purpoſe of the water is to dilute the ingredients, to prevent them from growing dry, and to aſſiſt their mutual action on each other; this quantity muſt be in a great degree arbitrary, or regulated by the opinion and experience

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of the operators: Mr Berthollet, however, even in this trivial circumſtance, does not leave the manufacturers intirely at the mercy of the Meſſrs Taylors, but gives all neceſſary latitude, by ſaying[*], that it is requiſite to employ a larger or a ſmaller quantity of water than is directed in the receipt, according to circumſtances which he explains with great propriety. Here, again, Meſſrs Taylors leave the public in the dark, by permitting ſuch as may hereafter truſt to their directions to blunder on in all circumſtances with the ſame ſpecific quantity of water.

There is, however, one very material difference, between the two receipts, which is in the quantity of water directed to be put into the receiver for being impregnated with the vapour of the oxygenated muriatic acid: In Mr Berthollet's book[†], twenty five gallons are directed to be employed along with the quantities of the chemical ingredients preſcribed, ed, and by Meſſrs Taylors ſpecification of their *invention*, two hundred gallons are ordered. When theſe are reduced to proportional parts, as has been already done for comparing the proportions of the other ingredients, it will be found, that Mr Berthollet impregnates twice as much water with the ſame quantity of ingredients as is done by the Meſſrs Taylors: Theſe gentlemen, however, direct, in a ſubſequent part of the ſpecification of their *invention*, that one hundred gallons of water be afterwards added to the bleaching liquor, when applied for the purpoſe of whitening the paper ſtuff, by which means their bleaching liquor, being reduced one third of its ſtrength, becomes in the proportion of three to four, in its relative quantity of water, when compared to that of Berthollet; or, in other words, the latter will be one fourth weaker, when applied to uſe, than the former. This is ſuppoſing all other circumſtances in the operation exactly ſimilar, which is by no means the caſe: For, as Mr Berthollet uſes and directs ſmaller and more accurate veſſels than thoſe employed by the Meſſrs Taylors, much leſs of the fumes or vapours of the oxygenated muriatic acid will neceſſarily be diſſipated or loſt, when the proceſs is conducted according to the plan of Mr Berthollet, than when the ſame operation is performed according to the directions of the Meſſrs Taylors. Mr Berthollet *, however, permits his bleaching liquor to be made of various ſtrengths, by uſing either a ſmaller or larger proportion of water in the receiver, or a ſmaller or larger proportion of the chemical ingredients in the retort. On this particular part of the ſubject, it may be obſerved, that when once any chemical ſubſtance has got fairly into the poſſeſſion of the public, every perſon muſt neceſſarily have a right to uſe it of any ſtrength that ſuits his conveniency or pleaſure. Oil of vitriol, diluted with

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[*] New Method, p. 44.

[†] Ditto, p. 47.

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* New Method, p. 54.

with water, is at preſent uſed by all bleachers in certain parts of the proceſs of bleaching; but each bleacher employs it in that degree of dilution which beſt anſwers his purpoſe; and it is preſumed no perſon could poſſibly acquire any excluſive right to its uſe, by employing it in any particular ſtate of dilution, even by means of letters patent.

Another chemical liquor is recommended for uſe in the proceſs of the New Method of Bleaching, both by Mr Berthollet and the Meſſrs Taylors; this is alkaline ley, or a ſolution of ſome alkaline ſalt in water: But, as this ſubſtance has been many years employed by all bleachers, both in its mild ſtate, and as rendered cauſtic by the addition of quicklime, it is not at all neceſſary to take up time in proving, that here Meſſrs Taylors have not the ſmalleſt poſſible pretence for being conſidered as *inventors*. The firſt mention of this ſubſtance is by King Solomon, who certainly never gave letters patent to the Meſſrs Taylors for its excluſive uſe; and the employment of it in the cauſtic ſtate was long ago recommended to bleachers by Dr Black or Dr Home of Edinburgh, though many bleachers ſtill prefer uſing it without the addition of lime.

There is one circumſtance in the ſpecification of Meſſrs Taylors *invention* which is not directed by Mr Berthollet; this is the particular form or conſtruction of the veſſel in which the goods to be bleached or whitened are to be ſubmitted to the action of the oxygenated muriatic acid, or bleaching liquor. Mr Berthollet only mentions *proper veſſels* in general, leaving it to the judgment of each manufacturer to employ any old veſſel, or to contrive any new form, as may beſt ſuit the particular purpoſe or conveniency of his manufacture or ſituation. Meſſrs Taylors, however, have choſen to appropriate a very old ſpecies of veſſel for their uſe; and have inſerted its deſcription, accompanied with a drawing, in the ſpecification of their admirable invention. This veſſel is neither more nor leſs than the ancient barrel *churn*, of large dimenſions indeed, but ſtill actually a *churn;* having the ſame rotatory motion, and the ſame longitudinal ſhelves to break and agitate its contents, which, from time immemorial, have been uſed in the common churn by all dairy-maids. Meſſrs Taylors, indeed, alter a little of its accuſtomed form, making it longer in proportion, and more nearly cylindrical; they add likewiſe a little, by ranging a number of pegs along each projecting ſhelf, to aſſiſt in ſeparating and mixing the included ſubſtances. If theſe trifling alterations give them a legal property in the churn ſo altered or improved, they are heartily welcome to the *invention;* nay, even may keep the churn altogether to themſelves, ſo far as the bleaching of paper ſtuff is concerned; for the writer of this Memorial has found by experience, that paper ſtuff can be extremely well bleached by means of oxygenated muriatic acid, without any churn whatever; at leaſt, if he uſed any thing like a *churn* in his operations, it was the ſtanding, not the barrel churn.

From what has been premiſed, there cannot remain the leaſt ground for ſuppoſing that the Meſſrs Taylors have any right to be conſidered as the *inventors* either of the oxygenated muriatic acid, or of its application generally to the purpoſes of bleaching or whitening all kinds of vegetable ſubſtances whatever, not even to its particular application to the paper manufactory. Mr Scheele of Sweden is decidedly the *inventor* of the oxygenated muriatic acid; Mr Berthollet of France is clearly the firſt publiſher of the application of that *invention* generally to all purpoſes of bleaching or whitening in manufactures; and Mr Chaptal, likewiſe of France, without any doubt, particularly employed the *invention* in the paper manufacture. It remains, therefore, to the Meſſrs Taylors, ſince they claim the merit of *invention* in this buſineſs, to be pronounced the *inventors* of the barrel churn filled with rows of wooden pegs.

They, it is true, firſt mention the particular application of this proceſs in one ſtep of the paper manufacture, after the rags have been reduced to what is called half-ſtuff; it remains, therefore, to counſel learned in the law to pronounce whether the general poſſeſſion of any *invention* can be taken out of the hands of the public by any minutely particular application. At preſent, it is univerſally common to bleach by the old and new methods, and even by both combined, linen and cotton, either in the form of cloth, thread, or yarn. There can be no doubt of the general privilege to bleach theſe ſubſtances, whether they be new or old, whole or in pieces; nay, Mr Berthollet's words are *, " When vegetable colours are immerſed in oxy-" genated muriatic acid liquor, they are de-" ſtroyed

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* New Method, p. 21.

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“ ſtroyed more or leſs completely, and quicker “ or ſlower, according to circumſtances.” Here the *invention* is ſo extremely general, as neceſſarily to include all particulars, from the original ſtate of flax and cotton, as they come from the hands of nature, through all their various ſtages of manufacture, upwards to that of the moſt perfect cloth, either green, printed, or dyed; and back again through every ſtage of progreſſion to paper, and even afterwards.

A caſe, conſiderably in point, occurs to the remembrance of the writer of this Memorial. Oil of vitriol had long been prepared by burning ſulphur in glaſs veſſels, which are liable to many accidents: A chemiſt diſcovered, that veſſels made of lead would anſwer much better, and took a patent for the *invention*; but other chemiſts, who had long known the uſe of leaden veſſels, generally in chemiſtry, though not particularly in the preparation of the oil of vitriol, got the excluſive privilege ſet aſide.

The late Sir Richard Arkwright purchaſed a machine for ſpinning cotton from one who had really *invented* it: He took a patent, which was ſet aſide, becauſe the patentee was not the real inventor. Theſe are only adduced as hints.

This Memorial can hardly be better concluded than by the following quotations from Berthollets New Method of Bleaching, and from the Tranſlators preface. " One of the original
" eſtabliſhers of the Javelle proceſs (*inventors*, it
" is to be noted, of Mr Berthollets *invention*)
" having gone over to England, has had the
" *effrontery* to demand an excluſive privilege for
" the preparation and ſale of the Javelle liquor,
" as a new invention of his own *."—" Though,
" in reality, diſcovered by Mr Berthollet, a ce-
" lebrated chemical philoſopher at Paris, ſeveral
" perſons in France, and ſome in England, have
" endeavoured to avail themſelves of the diſco-
" very, by ſpreading falſe ideas of the proceſs;
" and,

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[*] New Method, p. 86.

" and, in the latter country, have even aſſumed " the merit of *inventors*, to ſecure profit to them- " ſelves, under the ſanction of excluſive privi- " leges ſurreptitiouſly obtained *."

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* Preface, p. xi.

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APPENDIX.

THE Paper Makers of the neighbourhood of Edinburgh, having ſeen it their intereſt to try how far the New Method of Bleaching was calculated to be of ſervice to their manufacture, but finding the patent of the Meſſrs Taylors in their way, held ſeveral meetings this laſt autumn to concert general meaſures, for trying the experiments, and for conſulting how to avoid the influence of an excluſive privilege, which ſeemed calculated to preclude them from uſing a proceſs that had long been fully given to the world in all its parts, and in the moſt public manner. At theſe meetings the writer of this Memorial was requeſted to attend; and, as being more fully acquainted with the hiſtory of the diſcovery than their agent could poſſibly be ſuppoſed, and more verſant in the chemical nature of the proceſs than any of the gentlemen concerned in the trade, he was requeſted to draw up a Memorial on the ſubject for the information of counſel, and to ſuperintend a ſet of experiments on the practicability and efficacy of the proceſs.

The foregoing Memorial was, for the former of theſe purpoſes, drawn up, haſtily, indeed, as to its language and arrangement, but with every poſſible attention to accuracy of fact; and it is now publiſhed at the deſire of the gentlemen concerned, for the information of the trade in general, both in Scotland and in England; for, from the reſults of the experiments, it ſeems to be of infinite conſequence to the buſineſs of the paper manufacture, that the general right ſhould be fully aſcertained.

The experiments which have been made on the efficacy and expediency of the proceſs, are hitherto only completely ſatisfactory on the former head of inquiry. A conſiderable quantity of coarſe rags, both in their original ſtate, and reduced to pulp, were lately whitened by the Memorialiſt, at leaſt under his immediate inſpection; and the paper on which the Memorial is printed, is given as a convincing proof of the power of the oxygenated muriatic acid, for meliorating the colour and even fineneſs of paper rags and ſtuff. The original rags were ſuch as are uſually employed for manufacturing into Bible or Tea Crown Paper, exactly ſuch as this Appendix is printed on; and theſe very rags and ſtuff, after the bleaching proceſs, were manufactured into the individual paper which is uſed in printing the Memorial itſelf. It is neceſſary, however, to remark, that theſe experiments were made under every circumſtance of diſadvantage and inconvenience: The only apparatus which could be procured for the chemical part of the proceſs, was vaſtly too large and unmanageable; and the veſſels employed for ſubmitting the rags and ſtuff to the action of the oxygenated muriatic acid, were open, and every way ill calculated for the purpoſe. Theſe difficulties and inconveniencies will now be obviated, as it is determined to carry on the trials, at a Paper-mill near Edinburgh, with a chemical apparatus, and other veſſels, calculated entirely for anſwering the end in view, by the moſt convenient and frugal means. In this way, the efficacy will be abſolutely aſcertained, and the expence, which could not be even gueſſed at in the experiments yet made, will be reduced to calculation. It is not to be concealed, however, that, even with all the precautions which can poſſibly be taken at firſt, various circumſtances of imperfection muſt neceſſarily remain, to be removed by means of farther experience, both in the perfection of the bleaching proceſs, and the economy of its application to uſe.

As the Memorial was intended alone for the aſſiſtance of counſel, in judging of the chemical part of the matter in diſpute; and, as its preſent publication is meant, in a great degree, for the information of the gentlemen in the paper manufacture, the following ſhort general obſervations are here ſubjoined.

In the very outſet of the patent, the Meſſrs Taylors are repreſented as having,—" by means " of great ſtudy, and much expence, diſcovered " a New Method of decompoſing and removing " all ſorts of colours in linens and cottons, and " for whitening all other kinds of linens and " cottons, in different ſtages of the paper ma- " nufactory:"—And, immediately after, they are declared—" to be the firſt and true inven- " tors of the ſame, which has never been prac- " tiſed by any other perſon or perſons whatſo- " ever, as they really believe and underſtand."

After the clear hiſtory of the real diſcovery, and the compariſon between the true invention, as publiſhed by Mr Berthollet, with the falſely ſtiled *new invention* for which the patent has been granted, as already given in the body of the Memorial, the only obſervations that ſeem neceſſary are the few following ſhort extracts from the opinions of the learned Counſel conſulted by the Paper Makers.

The Dean of Faculty, in his opinion, has the following:—" In the preſent caſe, ſo far as I " can pretend to judge of chemical proceſſes, " the preparation and proceſs deſcribed in the " ſpecification, is the very ſame, in every eſſen" tial particular, with the invention of Mr " Scheele, recommended to the uſe of manu" facturers in general by Mr Berthollet, and " actually employed for the purpoſe of whiten" ing rags uſed in the paper manufacture by " Mr Chaptal, long before the date of theſe " letters patent; and therefore the allegation

" on which Meſſrs Taylors obtained their pa-
" tent, viz. that they had, with much ſtudy,
" &c. is utterly falſe; and, conſequently, the
" patent which gives them the excluſive right
" of uſing and vending the ſaid invention with-
" in Scotland is null and void; it being ex-
" preſsly declared ſo in the patent itſelf, if the
" invention, as to its uſe and practice, is not a
" new invention, or was not diſcovered by the
" patentees."

Mr Wight, formerly Solicitor-General, ſays,
—" It ſeems to me perfectly clear, that the
" preparation and proceſs, deſcribed in the ſpe-
" cification given in by Meſſrs Taylors relative
" to their patent, differs in no material point
" from that which appears to have been diſco-
" vered by the chemiſts mentioned in the que-
" ry: But, if this be ſo, it neceſſarily follows,
" even from the conditions under which the
" letters patent were given to Meſſrs Taylors,
" that they have no title to be protected in the
" excluſive

“ excluſive benefit, in order to obtain which,
“ they, under falſe pretences, applied for and
“ procured the letters patent.”—

Mr Rolland, after a very accurate hiſtory of the law of Patent Privileges, proceeds,—“ It
“ appears to me clear, from the facts ſtated in
“ the Memorial, that the Meſſrs Taylors can-
“ not be conſidered as the inventors of the
“ ſubject of the patent. The compoſition,
“ with its general property of deſtroying the
“ colour of every vegetable ſubſtance,—its uſe
“ in manufactures in general,—and in parti-
“ cular in the making of paper,—had not only
“ been diſcovered, but made public by others,
“ and was in the poſſeſſion both of chymiſts
“ and manufacturers before the patent was ob-
“ tained by the Meſſrs Taylors. Theſe were the
“ eſſential parts of the diſcovery; and I do not
“ think that a ſmall variation can intitle the
“ Meſſrs Taylors to the characters of being the
“ inventors, or, on that footing, to obtain or

" to avail themſelves of a patent conferring up-
" on them the excluſive right to the uſe of this
" compoſition. There cannot, in my appre-
" henſion, be any doubt, that the memorialiſts
" are, notwithſtanding the patent, in perfect
" ſafety in preparing the oxygenated muriatic
" acid, according to the preſcription of Ber-
" thollet, and applying it for diſcharging the
" colours, &c.

The Solicitor-General has likewiſe been conſulted in this affair; but, owing to preſſure of buſineſs, his formal opinion has not been yet received; it is perfectly known, however, to coincide in general principles with thoſe already given by the other three eminent council who have already, without concert, given their decided opinions againſt the validity of the patent granted to the Meſſrs Taylors. This, in one of the opinions, is declared to have been obtained by *ſubreption* and *obreption*; a phraſe in the law language of Scotland, which ſignifies any act or deed having been procured from the Crown by ſurpriſe and impoſture.

Notwithſtanding of this very clear ſtate of the total want of any right in the Meſſrs Taylors to an excluſive privilege, they have very modeſtly given in propoſals to the trade, for communicating the benefits of their patent, at the exceedingly moderate price of one hundred pounds *per annum*, during the term of the patent, or five hundred pounds of abſolute purchaſe, for each vat which may be diſpoſed to adopt their wonderful *invention*. So far as can be learnt, there are about ſeventy vats in Scotland; and ſuppoſing only one half of theſe to comply with the terms of the Meſſrs Taylors, they would thus draw a revenue of 3500 l. *per annum*, for fourteen years, or a round ſum at once of 17,500, from the Scotch manufacturers of paper: It is believed, that the Engliſh paper trade employs about a thouſand vats; and, on the ſame ſuppoſition that only a half ſhould make uſe of the offered privilege, England would pay to the Meſſrs Taylors 50,000 l. *per annum*, or the very handſome purchaſe of 250,000. Should either of theſe modes of purchaſe take place, the Meſſrs Taylors will certainly have great reaſon to rejoice in the ſucceſs of their ingenuity, in appropriating the invention of others to their own emolument; and Mr Berthollet, the real inventor of the proceſs, as applicable to manufactures in general, and Mr Chaptal who, ſo far as is known, firſt applied it to the uſe of the paper manufacture, may learn to ſing the verſes commonly attributed to Virgil,

Sic vos non vobis——

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